invention.

What is claimed is:

1. A method for processing and recording video signals generated by a plurality of externally synchronized video transmitters and propagated via a video transmission line to a recording receiver, said recording receiver including an external synchronizing generator for propagating an external synchronizing signal to said transmitters via a transmission line, an identification code generator for mixing each of said video signals with an individually allotted identification code signal and a synchronous switch for outputting said video signals synchronously in sequence on the basis of said external synchronizing signal to a digital recorder having at least one main memory storage device for routine recording of said video signals in endless sequence rotation, and at least one exclusive memory device for retaining said video signals recorded during an alarm state and an alarm data signal input for triggering said alarm state, the method comprising the steps of:

extracting said identification code from each sequencing individual video signal, for compressing and routinely storing compressed individual video signals one after

another in sequence along with the extracted identification code thereof, on the basis of the time and date of said routine recording, into said at least one main memory storage device, one after another, each to its capacity, in endless cascaded rotation, wherein freshly recorded signals replace the oldest stored signals; and

at least one of duplicating and transferring said signals recorded during said alarm state to said at least one exclusive memory device, thereby retaining and protecting said signals recorded during said alarm state from routine replacement by said freshly recorded signals.

2. The method as set forth in claim 1 which for synchronizing said plurality of transmitters, further comprises the steps of:

transmitting a pulse signal having a voltage level higher than a maximum voltage level of said video signals or lower than a minimum voltage level of said video signals to respective transmitting means over said video transmission line as an external synchronizing signal by using blanking level portions of the video signals;

separating said pulse signal transmitted over said transmission line from said video signals by comparing said video signals to a reference signal having a predetermined voltage level; and

applying said separated pulse signal to respective

transmitting means.

3. The method as set forth in claim 2, wherein said pulse signal is opposite in polarity to an internal synchronizing signal which is contained in each of said video signals.

4. The method as set forth in claim 1, which for synchronizing said plurality of transmitters further comprises the steps of:

transmitting an external synchronizing signal selected from one of a horizontal and vertical drive signal, a vertical drive signal, a composite signal, a horizontal signal and a vertical signal over said transmission line; and

receiving said signal transmitted over said transmission line and applying said signal to respective video transmitters.

5. A method for processing and recording video signals generated by a plurality of non-synchronized video transmitters and propagated via a video transmission line to a recording receiver, said recording receiver including a time base corrector, an external synchronizing generator for applying an external synchronizing signal to said time base corrector for outputting said video signals synchronizing in sequence, an identification code generator for mixing each of said video signals with an individually allotted identification code signal, and a synchronous switch for outputting said video signals synchronously in sequence on the basis of said external synchronizing signal to a digital recorder having at least one main memory storage device for routine recording of said video signals in endless sequence rotation, and at least one exclusive memory device for retaining said video signals recorded during an alarm state and an alarm data signal input for triggering said alarm state, the method comprising the steps of:

extracting said identification code from each sequencing individual video signal, for compressing and routinely storing compressed individual video signals one after another in sequence along with the extracted identification code thereof, on the basis of the time and date of said routine recording, into said at least one main memory

storage device, one after another, to its capacity, in endless cascaded rotation, wherein freshly recorded signals replace the oldest stored signal; and

at least one of duplicating and transferring said signals recorded during said alarms state to said at least one exclusive memory device, thereby retaining and protecting said signals recorded during said alarm state from routine replacement by said freshly recorded signals.

6. The method as set forth in claim 1, which for mixing said identification code signal with said video signal further comprises generating said individually allotted identification code for each individual signal of said video signals for injecting said individually allotted code into one of said transmitters, anywhere along said video transmission line, and at an input of said synchronous switch.

7. The method as set forth in claim 6, which for mixing said identification code signal with said video signal, further comprises generating plurality of said individually allotted identification codes for the plurality of said transmitters and injecting said individually allotted identification codes into said outputted video signals on the basis of each sequencing step of said synchronous switch.

8. The method as set forth in claim 1, wherein said alarm data signal is combined with said recorded signals during said alarm state.

9. The method as set forth in claim 1, wherein said step of at least one of duplicating and transferring said signals recorded during said alarm state to said at least one exclusive memory device further comprises extending said step of at least one of duplicating and transferring recorded signals to include signals recorded prior to said triggering of said alarm state and after said alarm state has been cleared.

10. The method as set forth in claim 1, further comprises the step of;

at least one of duplicating and transferring any of said stored signals by selecting one of the time and date of recording of said stored signals, said identification code, and said alarm data signal to said at least one exclusive memory device, thereby retaining and protecting said any of said stored signals from routine replacement by said freshly recorded signals.

11. A method as set forth in claim 1 and adapted for playing back said routinely stored signals and said signals

recorded during said alarm state, the method further comprising the steps of:

retrieving said stored signals from said at least one main memory storage device and said at least one exclusive memory device on the basis of said time and date of the routine recording of at least one of said stored signals said stored identification code, and said alarm data signal; and

decompressing the retrieved signals and re-injecting said identification code signals, with or without the time and date signals of the time and date of the recording of said retrieved signals, and with or without said alarm data signal into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to one of a monitor and a playback receiver.

12. The method as set forth in claim 11, and further comprising extracting at least one of the injected identification code, said time and date and said alarm data signal from said decompressed video signals for superimposing, upon command, said at least one of said code, said time and date and said alarm data signal onto a picture displayed on said monitor.

13. The method as set forth in claim 12, wherein said digital recorder further includes a directory memory for storing

texts or names on the basis of said identification codes and the method further comprises retrieving a text or name from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture displayed on said monitor.

14. The method as set forth in claim 11, and further comprising combining a plurality of said decompressed video signals retrieved on the basis of at least one of said time and date and a plurality of said identification codes for displaying on command onto said monitor, one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

15. The method as set forth in claim 1, and further comprising cascading a plurality of said digital recorders for enlarging the total recording capacity, wherein each of said cascaded digital recorders records to a capacity thereof one after another in endless rotation, and wherein freshly processed signals replace the oldest stored signals.

16. The method as set forth in claim 15, which further comprises the steps of:

retrieving any stored signals from any of said cascaded

digital recorders on the basis of said at least one of time and date of the recording of at least one of the retrieved signals, said stored identification code and said alarm data signal;

decompressing said retrieved signals and re-injecting said identification code signals, with or without the time and date signals of the time and date of the recording of said retrieved signals, and with or without said alarm data into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to one of a monitor and a playback receiver.

17. The method as set forth in claim 11, adapted for playing back said routinely stored signals and said signals recorded during said alarm state through said playback receiver and further comprising the steps of:

extracting from said decompressed video signals at least one of said re-injected time and date of the recording, said re-injected identification code or codes said re-injected alarm data; and

selecting video signals for playback on the basis of said at least one of said extracted code, said time and date of the recording and said alarm data, and outputting selected video signals to a monitor.

18. The method as set forth in claim 17, and further comprising

applying at least one of the extracted identification code said time and date of the recording and said alarm data signal for superimposing upon command, one of said code, said time and date and said alarm data onto a picture displayed on said monitor.

19. The method as set forth in claim 17, wherein said playback receiver further includes a directory memory for storing texts or names on the basis of said identification codes and the method further comprises retrieving a text or name from said directory memory on the basis of said code and superimposing upon command said text or name onto a picture displayed on said monitor.

20. The method as set forth in claim 17, and further comprising combining a plurality of said retrieved video signals on the basis of said time and date and a plurality of said identification codes for displaying on command, onto said monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

21. The method as set forth in claim 16, adapted for playing back at least one of said routinely stored signals and said signals recorded during said alarm state through said

playback receiver and further comprising the steps of:

extracting from said decompressed video signal said at least one of said re-injected time and date of the recording, said re-injected identification code and said re-injected alarm data signal; and

selecting video signals for playback on the basis of said at least one of said extracted code, said time and date of the recording and said alarm data, and outputting selected video signals to a monitor.

22. The method as set forth in claim 21, further comprising applying said at least one of the extracted identification code, said time and date of the recording and said alarm data, for superimposing upon command, said at least one of said code, said time and date and said alarm data onto a picture displayed on said monitor.

23. The method as set forth in claim 22, wherein said playback receiver further includes a directory memory for storing texts or names on the basis of said identification codes and the method further comprises retrieving a text or name from said directory memory on the basis of said code and superimposing upon command said, text or name onto said picture.

24. The method as set forth in claim 21, further comprising combining a plurality of said retrieved video signals on the basis of said time and date and on the basis of a plurality of said identification codes for displaying on command onto said monitor one of a split picture and multi-screen picture selected from the group of a picture in picture, a quad picture, a 9 split picture, a 16 split picture and a combination thereof.

25. A method for processing and recording video signals generated by a plurality of video transmitters and propagated via a transmission line to a recording receiver, said recording receiver including a plurality of compression means for compressing said video signals, an identification code generator for mixing each compressed video signal with an individually allotted identification code signal, and a parallel-to-serial converter for serially outputting said compressed video signals to a digital recorder having at least one main memory storage device for routine recording of said video signals in endless cascaded rotation, and at least one exclusive memory device for retaining said video signals recorded during an alarm state and an alarm data signal input for triggering said alarm state, the method comprising the steps of:

extracting said identification code from each individual compressed video signal, for storing said individual compressed video signals, routinely one after another along with extracted identification codes, thereof on the basis of the time and date of said routine recording, into said at least one main memory storage device, one after another, each to capacity thereof, in endless cascaded rotation, wherein freshly recorded signals replace the oldest stored signals; and

at least one of duplicating and transferring said signals recorded during said alarm state to said at least exclusive one alarm memory device, thereby retaining and protecting said signals recorded during said alarm state from routine replacement by said freshly recorded signals.

26. A method for processing and recording video signals generated by a plurality of video transmitters and propagated via a transmission line to a recording receiver, said recording receiver including a plurality of compression means for compressing said video signals, an identification code generator for mixing each video signal with an individually allotted identification code signal, and a parallel-to-serial converter for serially outputting said compressed video signals to a digital recorder having at least one main memory storage device for routine recording of said video signals in endless cascaded

rotation, and at least one exclusive memory device for retaining said video signals recorded during an alarm state and an alarm data signal input for triggering said alarm state, the method comprising the steps of:

extracting said identification code from each individual compressed video signal, for storing said individual compressed video signals, routinely one after another along with extracted identification codes thereof, on the basis of the time and date of said routine recording, into said at least one main memory storage device, one after another, each to capacity thereof, in endless cascaded rotation, wherein freshly recorded signals replace the oldest stored signals;

at least one of duplicating and transferring said signals recorded during said alarm state to said at least exclusive one alarm memory device, thereby retaining and protecting said signals recorded during said alarm state from routine replacement by said freshly recorded signals, wherein:

a code signal commensurate with said individually allotted identification code for each individual signal of said video signal is generated and said signal is injected into said video signal within a respective transmitter, or anywhere along said video transmission line, or at the input of said compression means.

27. The method as set forth in claim 25, wherein said alarm data signal is combined with said recorded signals during said alarm state.

28. The method as set forth in claim 25, wherein said step of at least one of duplicating and transferring said signals recorded during said alarm sate to said at least one exclusive memory device further comprises extending said step of at least duplicating and transferring to include recorded signals recorded at least one of prior to the triggering of said alarm state and after said alarm state has been cleared.

29. The method as set forth in claim 25, and further comprising at least one of duplicating and transferring any of said stored signals by selecting at least one of the time and date of the recording of said stored signals, said identification codes and said alarm data to said at least one exclusive memory device, thereby retaining and protecting said any of said stored signals from routine replacement by said freshly recorded signals.

30. The method as set forth in claim 25, and adapted for playing back said routinely stored signals and/or said signals recorded during said alarm state and further

comprising the steps of:

retrieving said stored signals from said at least one of said main memory storage device and said exclusive memory device on the basis of at least one of said time and date of the recording of said stored signal, said stored identification code and said alarm data; and

decompressing the retrieved signals and re-injecting said identification code signals, with or without the time and date signals of the time and date of the recording of said retrieved signals, and with our without said alarm data signal into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to a monitor or to a playback receiver.

31. The method as set forth in claim 30, and further comprising extracting at least one of the injected identification code, said time and date and said alarm data signal from said decompressed video signals for superimposing upon command said at least one of said code, said time and date and said alarm data signal onto a picture displayed on said monitor.

32. The method as set forth in claim 31, wherein said digital recorder further includes a directory memory for storing texts or names on the basis of said identification codes and the method further comprises retrieving a text or name

from said director memory on the basis of said code for superimposing upon command said text or name onto said picture.

33. The method as set forth in claim 30, and further comprising combining a plurality of said decompressed video signals retrieved on the basis of at least one of said time and date, a plurality of said identification codes for displaying on command, onto said monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

34. The method as set forth in claim 25, and further comprising cascading a plurality of said digital recorders for enlarging the total recording capacity, wherein each of said cascaded digital recorders records to its capacity one after another in endless rotation, and wherein freshly processed signals replace the oldest stored signals.

35. The method as set forth in claim 34, and further comprising retrieving any stored signals from any of said cascaded digital recorders on the basis of at least one of said time and date of the recording of the retrieved signal, said stored identification codes and said alarm data signal, decompressing said retrieved signals and re-injecting said

identification code signals, with our without the tie and date of the recording of said retrieved signals, and with our without said alarm data into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to a monitor or to a playback receiver.

36. The method as set forth in claim 30, adapted for playing back at least one of said routinely stored signals and said signals recorded during said alarm state through said playback receiver and further comprising the steps of:
extracting from said decompressed video signals said at least one of said re-injected time and date of the recording, said re-injected identification code and said re-injected alarm data signal; and
selecting video signals for playback on the basis of at least one of said extracted codes said time and date of the recording and said alarm data signal and outputting selected video signals to a monitor.

37. The method as set forth in claim 36, and further comprising applying at least one of the extracted identification code said time and date of the recording said alarm data signal for superimposing upon command, said at least one of said code said time and date and said alarm data signal onto a picture displayed on said monitor.

38. The method as set forth in claim 36, wherein said playback receiver further includes a directory memory for storing texts or names on the basis of said identification codes and the method further comprises retrieving a text or name from said directory memory on the basis of said code and superimposing upon command said text or name onto said picture.

39. The method as set forth in claim 36, further comprising combining a plurality of said retrieved video signals on the basis of said time and date and on the basis of a plurality of said identification codes for displaying on command, onto said monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

40. The method as set forth in claim 35, adapted for playing back said at least one of said routinely stored signals and said signals recorded during said alarm state through said playback receiver and further comprising the steps of:

extracting from said decompressed video signal at least one of said re-injected time and date of the recording, said re-injected identification codes and said re-injected alarm data; and

selecting video signals for playback on the basis of at least one of said extracted codes, said time and date of the recording and said alarm data signal, and outputting selected video signals to a monitor.

41. The method as set forth in claim 40, and further comprising applying at least one of the extracted identification code, said time and date of the recording and said alarm data signal for superimposing, upon command, said at least one of said code, said time and date and said alarm data onto a picture displayed on said monitor.

42. The method as set forth in claim 41, wherein said playback receiver further includes a directory memory for storing texts or names on the basis of said identification codes and the method further comprises retrieving a text or name from said directory memory on the basis of said code and superimposing upon command said text or name onto said picture.

43. The method as set forth in claim 40, and further comprising combining a plurality of said retrieved video signals on the basis of said time and date and on the basis of a plurality of said identification codes for displaying on command, onto said monitor one of a split picture and a multi-screen picture selected from the group consisting of

a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

44. An apparatus for processing and digitally recording a plurality of video signals comprising:

a plurality of transmitting means for generating video signals;

a recording receiving means for receiving said video signals, said recording receiving means including a switching means for sequentially connecting said plurality of transmitting means to a digital video recording means;

a plurality of video transmission lines for connecting said plurality of transmitting means to said recording receiving means and said switching means;

external synchronizing signal generator circuit means for feeding external synchronizing signals to said switching means and to said plurality of transmitting means through a transmission line;

each of said transmitting means including an externally synchronized television camera for receiving an external synchronizing signal and for applying said external synchronizing signal to said television camera, thereby synchronizing said television cameras to each other and to said switching means;

a circuit for generating code signals corresponding to an identification code allotted to each individual said video

signal, an injection circuit for mixing said code signals into said video signal, within said transmitting means, or along said transmission lines, or adjacent to said switching means;

the digital video recording means including a central processing circuit including time and date signal generating means, an decoding/encoding circuit for receiving said video signals in sequence for extracting said identification codes from the received video signals, and a compression/decompression circuit for compressing said received video signals and for outputting a compressed signals along with the respective extracted identification codes thereof and the time and date of the recording to at least one main memory storage device;

said at least one main memory storage device for routine storing of said compressed signals along with said identification code and said time and date of the recording into said one or more main memory storage devices, for storage in an endless cascaded rotation, one after another, each to capacity thereof, wherein freshly stored signals replace the oldest stored signals in the cascade;

an alarm data signal input for receiving an alarm signal and for triggering an alarm state; and

at least one exclusive memory storage device for retaining said video signals recorded during said alarm state, wherein said routine recording during said alarm state of

said compressed signals along with said identification codes and said time and date of the recording is subjected to at least one of duplication and transfer to said at least one exclusive memory storage device, thereby retaining and protecting said recording during the alarm state from routine replacement by said freshly stored signals.

45. An apparatus for processing and recording plurality of video signals as set forth in claim 44, wherein said external synchronizing signal generator circuit means is connected to at least one of respective ones of said video transmission lines and adjacent to said switching means, for generating a pulse signal having a voltage level higher than a maximum voltage level of said video signals generated by the respective transmitting means or lower than a minimum voltage level of said video signal;

each said externally synchronized television camera including a comparator circuit means associated respectively with said television cameras for separating said pulse signal transmitted over said video transmission lines from said video signals by comparing said video signals to a reference signal having a predetermined voltage level, and applying said separated pulse signal to said television cameras associated with said comparator circuit means, thereby synchronizing said television

cameras to each other and to said switching means.

46. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 45, wherein said pulse signal is opposite in polarity to an internal synchronizing signal which is contained in each of said video signals.

47. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 44, wherein said external synchronizing signal generator circuit means generates the external synchronizing signal selected from the group consisting of a horizontal and vertical drive signal, a vertical drive signal, a composite signal, and horizontal and vertical signal over said transmission line.

48. An apparatus for processing a digitally recording plurality of video signals comprising:

a plurality of non-synchronized transmitting means for generating video signals;

a recording receiving means for receiving said video signals, said recording receiving means including a switching means for sequentially connecting said plurality of transmitting means to a digital video recording means and a time base corrector;

a plurality of video transmission lines for connecting said plurality of transmitting means to said recording receiving means and said switching means;

external synchronizing signal generator circuit means for feeding external synchronizing signals to said switching means and to said time base corrector through a transmission line, said time base corrector correcting a time base of the receiving video signals on the basis of said external synchronizing signals fed to said time base corrector;

each of said transmitting means including a television camera for receiving an external synchronizing signal and for applying said external synchronizing signal to said television camera, thereby synchronizing said television camera to each other and to said switching means;

a circuit for generating code signals corresponding to an identification code allotted to each individual said video signal;

an injection circuit for mixing said code signals into said video signal within said transmitting means, or along said transmission lines, or adjacent to said switching means;

a digital video recording means including a central processing circuit including time and date signal generating means, an decoding/encoding circuit for receiving said video signals in sequence for extracting said identification codes from the received video signals,

and a compression/decompression circuit for compressing said received video signals and for outputting a compressed signals along with the respective extracted identification codes thereof and the time and date of the recording to at least one main memory storage device;

said at least one main memory storage device for routine storing of said compressed signals along with said identification codes and said time and date of the recording into said at least one main memory storage device, for storage in an endless cascaded rotation, one after another, each to capacity thereof, wherein freshly stored signals replace the oldest stored signals in the cascade;

an alarm data signal input for receiving an alarm signal and for triggering an alarm state; and

at least one exclusive memory storage device for retaining said video signals recorded during said alarm state, wherein said routine recording during said alarm state of said compressed signals along with said identification codes and said time and date of the recording is subjected to at least one of duplication and transfer to said at least one exclusive memory storage device, thereby retaining and protecting said recording during the alarm state from routine replacement by said freshly stored signals.

49. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 44, wherein said circuit for generating code signals generates a plurality of said codes allotted to each individual video signal for mixing a selected individual code with said video signals through said injection circuit by injecting said codes into an output pole of said switching means; and wherein a data signal indicative of position status of said switching means is fed to said circuit for generating code signals for generating a selected code, commensurate with the identification code allotted to a video signal connected to said output pole.

50. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 44, wherein said alarm data signal is fed to said decode/encode circuit for mixing said alarm data signal with said recorded signals during said alarm state.

51. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 44, wherein said recorded signals subjected to at least one of duplication and transfer, recorded during said alarm state, to said at least one exclusive memory storage device are extended to include stored signals, recorded at least one of prior to said triggering of said alarm state and after

said alarm state has been cleared.

52. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 44, wherein said recorded signals subjected to at least one of duplication and transfer include any of said recorded signals by selecting at least one of the time and date of the recording of said recorded signals said identification codes and said alarm data to said at least one exclusive memory storage device, thereby retaining and protecting said any of said recorded signals from routine replacement by said freshly recorded signals.

53. The apparatus as set forth in claim 44, and adapted for playing back said routinely recorded signals and said signals recorded during said alarm state wherein said central processing circuit retrieves said recorded signals from said at least one main memory storage device and said at least one exclusive memory storage device on the basis of at least one of said time and date of the recording of said recorded signals, said stored identification codes and said alarm data, and wherein said compression/decompression circuit decompresses the recorded signals and said decoding/encoding circuit re-injects said identification code signals, with or without the time and date signals of the recording of said retrieved signals, and with or

without said alarm data, into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to one of a monitor and a playback receiver.

54. The apparatus as set forth in claim 53, adapted for playing back said routinely recorded signals and said signals recorded during said alarm state, wherein said encoding/decoding circuit extracts at least one of injected identification codes, said time and date of the recording and said alarm data from said decompressed video signals and outputs a signal to a superimposing circuit for superimposing at least one of said code, said time and date and said alarm data onto a picture displayed on said monitor.

55. The apparatus as set forth in claim 54, adapted for playing back said routinely recorded signals and said signals recorded during said alarm state, wherein said encoding/decoding circuit further comprises a directory memory for storing texts or names on the basis of said identification codes for retrieving a text or name from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture.

56. The apparatus as set forth in claim 53, adapted for playing back said routinely recorded signals and said signals recorded during said alarm state, wherein said central processing circuit further includes a picture memory circuit for combining a plurality of said decompressed video signals and outputting a combined video signal for displaying onto said monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, a quad picture, a 9 split picture, a 16 split picture and a combination thereof.

57. The apparatus for processing and digitally recording plurality of video signals as set forth in claim 44, wherein a plurality of said digital recorders are connected in a cascade for enlarging the total recording capacity; and wherein each of said digital recorders connected in the cascade records to its capacity one after another in endless rotation, and wherein freshly processed signals replace the oldest stored signals.

58. The apparatus as set forth in claim 57, adapted for playing back said routinely recorded signals and aid signals recorded during said alarm state, wherein said central processing circuit retrieves said recorded signals from at least one of said main memory storage device and said at least one exclusive memory storage device on the basis of

at least one of said time and date of the recording of said recorded signal, said stored identification codes and said alarm data, and wherein said compressing/decompressing circuit decompresses the recorded signals and said decoding/encoding circuit re-injects said identification code signals, with or without the time and date signals of the recording of said retrieved signals, and with or without said alarm data, into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to one of a monitor and a playback receiver.

59. An apparatus for processing and digitally recording a plurality of video signals, comprising :

plurality of transmitting means for generating video signals;

recording receiving means for receiving said video signals, said recording receiving means including a compression means for compressing said plurality of video signals, an identification code generator for mixing each of compressed video signals with individually allotted identification code signal, and a parallel-to-serial converter for serially outputting said compressed video signals to a digital video recording means;

a plurality of video transmission lines for connecting said plurality of transmitting means to said recording receiving

means and to said compressing means;

said digital video recording means including a central processing circuit comprising time and date signal generating means, a decoding/encoding circuit for receiving said compressed video signals for extracting said identification codes from the received video signals, and a compressing/decompressing circuit for outputting said compressed video signals along with said extracted identification codes thereof and the time and date of the recording to at least one main memory storage device;

said at least one main memory storage device operating for routine storing said compressed video signals along with said identification codes and said time and date of the recording into said at least one main memory storage device, in endless cascaded rotation, one after another, each to its capacity, wherein freshly stored signals replace the oldest stored signals in a cascade;

an alarm data signal input for receiving an alarm signal and for triggering an alarm state; and

at least one exclusive memory storage device for retaining said video signals recorded during said alarm state, wherein said routine recording of said compressed signals along with said identification codes and said time and date of the recording is subjected to one of duplication and transfer to said at least one exclusive memory storage device, thereby retaining and protecting said recording

during the alarm state from routine replacement by said freshly stored signals.

60. The apparatus for processing and digitally recording a plurality of video signals as set forth in claim 59, wherein said identification code generator for mixing said identification code signal with said compressed signal generates said individually allotted identification code signal for mixing said code with each individual signal of said video signals by injecting said individually allotted code into said transmitters, or anywhere along said video transmission lines, or at the inputs of said compression means.

61. The apparatus for processing and digitally recording a plurality of video signals according to claim 59, wherein said said alarm data signal is fed to said decoding/encoding circuit for mixing said alarm data signal with said recorded signals during said alarm data.

62. The apparatus for processing and digitally recording a plurality of video signals according to claim 59, wherein said at least one of said duplication and transfer of said signals recorded during said alarm state of said at least one exclusive memory storage device are extended to include stored signals, recorded prior to said triggering of said alarm state or after said alarm state has been cleared.

63. The apparatus for processing and digitally recording a plurality of video signals according to claim 59, wherein said recorded signals subjected to at least one of duplication and transfer include any of said recorded signals by selecting one of the time and date of the recording of said recorded signals, said identification codes and said alarm data to said at least one exclusive memory storage device, thereby retaining and protecting said any of said recorded signals from routine replacement by said freshly recorded signals.

64. The apparatus as set forth in claim 59, and adapted for playing back said routinely recorded signals and said signals recorded during said alarm state, wherein said central processing circuit retrieves said recorded signals from at least one of said main memory storage device and said exclusive memory storage device on the basis of at least one of said time and date of the recording, said stored identification codes and alarm data; and

wherein said compression/decompression circuit decompresses the signals and said decoding/encoding circuit re-injects said identification code signals, with or without signals of the time and date of the recording of said retrieved signals, and with or without said alarm data, into the vertical blanking portion of the decompressed video signals

for outputting said decompressed video signals to one of a monitor and a playback receiver.

65. The apparatus as set forth in claim 64, adapted for playing back said routinely recorded signals and said signals recorded during said alarm state, wherein said encoding/decoding circuit extracts at least one of the injected identification code, said time and date of the recording and said alarm data from said decompressed video signals and outputs a signal to a superimposing circuit for superimposing at least one of said code, said time and date and said alarm data onto a picture displayed on said monitor fed with said decompressed video signals.

66. The apparatus as set forth in claim 64, adapted for playing back said routinely recorded signals and said signals recorded during said alarm state, wherein said encoding/decoding circuit further comprises a directory memory for storing texts or names on the basis of said identification codes for retrieving a text or names from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture.

67. The apparatus as set forth in claim 64 for playing back said routinely recorded signals and said signals recorded

during said alarm state, wherein said central processing circuit further includes a picture memory circuit for combining a plurality of said decompressed video signals and outputting a combined video signal for displaying onto said monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof,

68. The apparatus for processing and digitally recording plurality of video signals according to claim 59, wherein a plurality of said digital recorders are connected in cascade for enlarging the total recording capacity; and wherein each of said digital recorders connected in the cascade, records to its capacity one after another in endless rotation, and wherein freshly processed signals replace the oldest stored signals.

69. The apparatus as set forth in claim 65, adapted for playing back said routinely recorded signals and said signals recorded during said alarm state according to claim 68 wherein said central processing circuit retrieves said recorded signals from at least one of said main memory storage device and said recorded signals from at least one of said main memory storage device and said exclusive memory storage device on the basis of at least one of said

time and date of the recording, said stored identification codes and said alarm data;

and wherein said compressing/decompressing circuit decompresses the received video signals and said decoding/encoding circuit re-injects said identification code signals, with or without signals of the time and date of the recording of said retrieved signals, and with or without said alarm data, into the vertical blanking portion of the decompressed video signals for outputting said decompressed video signals to one of a monitor and a playback receiver.

70. The apparatus as set forth in claim 58 for processing, digitally recording and playing back a plurality of video signals wherein each of said digital video recorders is assigned with an exclusive station code and includes means to enter said station code, said apparatus further comprising:

a cascade control means including cascade in-out terminals for interconnecting with in-out control terminals of said digital recorders connected in cascade, an alarm input terminal for receiving and processing alarm data signals and for communicating an alarm state along with alarm particulars data to said digital recorders through said cascade in-out terminals and playback control in-out terminals for receiving playback and display commands and

for feeding status data of said time and date of the recording of any of the recorded signals of said digital recorders connected in cascade;

video signal distribution means for feeding said video signals to said digital video recorders connected in cascade;

video output selector means including a video switch for selecting connecting any of the decompressed output signals fed from said digital video recorders connected in cascade to one of a monitor and a playback receiver; and wherein said central processing means manages and updates the time and date of the recording in progress and the status of said digital video recorders connected in the cascade and retains the data of time and date of the recording of each digital video recorder connected in cascade and said alarm particulars for communicating said updated time and date along with said status and said alarm particulars to one of said monitor and said playback receiver and;

wherein said cascade control means addresses each of said digital video recorders connected in cascade and said video switch on the basis of at least one of said updated time and date, said identification code, said station code and said alarm particulars.

71. An apparatus as set forth in claim 69, for processing, digitally recording and playing back plurality of video

signals, wherein each of said digital video recorders is assigned with an exclusive station code and includes means to enter said station code, said apparatus further comprising:

cascade control means including cascade in-out terminals for interconnecting with in-out control terminals of said digital recorders connected in cascade, and alarm input terminal for receiving and processing alarm data signals and for communicating an alarm state along with alarm particulars data to said digital recorders through said cascade in-out terminals and playback control in-out terminals for receiving playback and display commands and for feeding status data pertaining said circuit comprising time and date signal generating means, a decoding/encoding circuit for receiving said compressed video signals for extracting said identification codes from the received signals, and a compressing/decompressing circuit for outputting said compressed signals along with said extracted identification codes and the time and date of the recording to a memory storage device;

one or more main memory storage devices for routine storing said compressed video signals along with said identification codes and said time and date of the recording into each said main memory storage device, in endless cascaded rotation, one after another, each to its capacity, wherein freshly stored signals replace the oldest

stored signals in the cascade;

an alarm data signal input for receiving alarm signal and for triggering an alarm state;

an exclusive one or more memory storage devices for retaining said video signals recorded during said alarm state, wherein said routine recording of said compressed signals along with said identification codes and said time and date of the recording is duplicated and transferred to said exclusive one or more memory storage devices, thereby retaining and protecting said recording during alarm state from routine replacement by said freshly stored signals.

72. The playback receiver as set forth in claim 71, wherein said system memory means further comprises a directory memory for storing texts or names on the basis of said identification codes for retrieving a text or name from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture.

73. The playback receiver as set forth in claim 72, and further comprising a video buffer memory circuit for combining a plurality of said decompressed signals and outputting a combined video signal for displaying onto the monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture,

9 split picture, 16 split picture and a combination thereof.

74. The playback receiver as set forth in claim 73, wherein said video output circuit further comprises a superimposing circuit for superimposing upon select command at least one of said code, said time and date and said alarm data on the basis of at least one of said identification code said time and date of the recording and said alarm data extracted from said decompressed signals and for outputting video signal and for displaying a superimposed picture onto the monitor.

75. The playback receiver as set forth in claim 74, wherein said system memory means further comprises a directory memory for storing texts or names on the basis of said identification codes for retrieving a text or name from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture.

76. The playback receiver as set forth in claim 73 and further comprising a video buffer memory circuit for combining a plurality of said decompressed signals and outputting a combined video signal for displaying onto a monitor one of a split picture and a multi-screen picture selected from

the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

77. The playback receiver as set forth in claim 74, wherein said video output circuit further comprises a superimposing circuit for superimposing upon select command at least one of said code said time and date and said alarm data on the basis of at least one of said identification code said time and date of the recording and said alarm data extracted from said decompressed signals and for outputting video signal and for displaying a superimposed picture onto the monitor.

78. The playback receiver as set forth in claim 77, wherein said system memory means further comprises a directory memory for storing texts or names on the basis of said identification codes for retrieving a text or name from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture.

79. The playback receiver as set forth in claim , and further comprising a video buffer memory circuit for combining a plurality of said decompressed signals and outputting a combined video signal for displaying onto the monitor one

of a split picture or multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.

80. The playback receiver as set forth in claim , wherein said video output circuit further comprises a superimposing circuit for superimposing upon select command at least one of said code said time and date and said alarm data on the basis of at least one of said identification code, said time and date of the recording and said alarm data extracted from said decompressed signals and for outputting video signal and for displaying a superimposed picture onto the monitor.

81. The playback receiver as set forth in claim , wherein said system memory means further comprises a directory memory for storing texts or names on the basis of said identification codes for retrieving a text or name from said directory memory on the basis of said code for superimposing upon command said text or name onto said picture.

82. The playback receiver as set forth in claim , and further comprising a video buffer memory circuit for combining a plurality of said decompressed signals and outputting a

combined video signal for displaying onto the monitor one of a split picture and a multi-screen picture selected from the group consisting of a picture in picture, quad picture, 9 split picture, 16 split picture and a combination thereof.